REMARKS

In the Office Action, the Examiner rejected claims 1, 4-8, 10, 14, 17-19 and 21 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,535,309 to Terahara; rejected claims 2, 9, 11-13, 15, 20, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Terahara; and rejected claims 3 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Terahara in view of Patent Application Publication No. US2002/0101636 to Xiao et al.

Applicants have amended claims 1 and 14, and canceled claims 6 and 17. Claims 1-5, 7-16 and 18-23 are pending in the patent application.

At the outset, Applicants note that claims 1 and 14 have been amended to include the subject matter of claims 6 and 17, respectively. Claims 6 and 17 have been cancelled. As amended, claims 1 and 14 are directed toward an optical communications apparatus having a gain element, a controller and an optical amplifier. An add module is also provided that receives at least one channel to a signal input thereto. The optical amplifier supplies the signal input to the optical amplifier and a controller controls the gain element according to an add path amplification value. Moreover, the gain element is controlled such that the portion of a gain profile of the optical amplifier corresponding to a spectrum associated with the added at least

one channel substantially matches a portion of a gain profile of the gain element corresponding to the spectrum. Such substantial matching of gain profiles is preferable so that added channels are amplified to match the WDM signal output from an add/drop module (specification at page 9, lines 8-10).

Applicants respectfully traverse the Examiner's rejection of claims 1, 4-8, 10, 14, 17-19 and 21 under 35 U.S.C. § 102(e) as being anticipated by Terahara. Amended claim 1, for example, is not anticipated by Terahara because the reference fails to teach each and every element of the claim. In particular, Terahara at least fails to teach the claimed combination including a gain element, optical amplifier and control circuit such that "a portion of a gain profile of said optical amplifier corresponding to a spectrum associated with said added at least one channel substantially matches a portion of a gain profile of said gain element corresponding to said spectrum," as recited in amended claim 1.

As noted above, claim 6 has been cancelled and the subject matter thereof has been incorporated into amended claim 1. In rejecting claim 6, the Examiner contends that Terahara at col. 8, lines 60-65 discloses a "gain element having a gain profile substantially matching a gain profile of a signal input to the add module." Applicants respectfully disagree.

The cited portion of Terahara discusses an equation that mathematically expresses a relationship between optical powers of various signals passing through an optical add/drop multiplexer (OADM) and signals added to and dropped from the OADM. These signal powers, however are integrated over a given spectrum, and thus are indicative of an aggregate power, e.g., the total optical power of the channels dropped by the OADM. Such teachings of powers alone, however, are not suggestive of gain profiles, which are functions of signal strength and wavelength.

By way of example, two signals can have an aggregate power the same as a single signal (e.g., the two signals can each have half the power of the single signal), but the gain profiles of each would be different. Namely, the gain profile of the two signals would include two peaks, while the single signal would includes only one peak.

Accordingly, the teachings of optical signal powers in Terahara fail to disclose the claimed gain profiles, as well as the claimed controller that controls a gain element such that a portion of a gain profile of the optical amplifier substantially matches a portion of a gain profile of the gain element, as recited in amended claim 1.

Claim 14 recites a method of power balancing including the step of controlling an add path "such that a spectral portion of a gain profile of said optical amplifier corresponding to a

spectrum associated with said added at least one channel substantially matches a portion of a gain profile of said gain element corresponding to said spectrum." Claim 14 is similar to claim 1 in requiring substantial matching of gain profiles, and is thus distinguishable over Terahara at least for reasons discussed above in regard to amended claim 1.

In light of the above-described deficiencies of Terahara, Applicants respectfully submit that claims 1 and 14 are allowable over the applied reference and claims 4-8 and 10 are allowable at least due to their dependence from claim 1. In addition, 17-19 and 21 are allowable at least due to their dependence from amended claim 14.

Applicants respectfully traverse the Examiner's rejection of claims 2, 9, 11-13, 15, 20, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Terahara. Even if the Examiner's assertions concerning the Section 103 rejection are correct, Terahara still fails to teach or suggest the claimed substantial matching of gain profiles, as discussed above. Claims 2, 9 and 11-13 are therefore allowable at least due to their dependence from claim 1, claims 15, 20, 22 and 23 are allowable at least due to their dependence from amended claim 14.

Applicants respectfully traverse the Examiner's rejection of claims 3 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Terahara in view of Xiao et al. In formulating the Section

103 rejection in view of Xiao et al., the Examiner acknowledges that neither Terahara nor Xiao et al. teach the formula recited in claims 3 and 16. Nevertheless, the Examiner concludes that the claimed formula would be obvious, but fails to cite any teachings or suggestions in the references that would lead one of ordinary skill to modify the formulas disclosed in Xiao et al. in order obtain Applicants' claimed formulas. Applicants respectfully submit, therefore, that in light of the admitted shortcomings of Xiao et al. and Terahara, claims 3 and 16 are distinguishable over the Examiner proposed combination of references.

Moreover, even if Xiao et al. and Terahara were combinable in the manner set forth by the Examiner at page 5 of the Office Action, the resulting combination of references would still fail to overcome the above-described deficiencies of Terahara. Claims 3 and 16, therefore, are allowable at least due to their dependence from amended claims 1 and 14.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 02-2448. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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